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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,494

07/30/2003

Saurabh Kumar

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12/11/2007

SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVENUE, SUITE 5400
SEATTLE, WA 98104-7092

EXAMINER

WONG, XAVIER S

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

12/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/630,494

Applicant(s)

KUMAR, SAURABH

Examiner

Xavier Szewai Wong

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13th November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

- Applicant's Amendment filed 13th November 2007 is acknowledged
- Claims 1, 2, 9, 10, 11, 13, 14, 15 and 17 – 20 have been amended
- Claims 28 – 31 have been newly added
- Claims 1 – 31 are still pending in the present application
- This action is made Final

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3 – 6, 9, 10 – 15, 17 – 20, 22, 24, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al (U.S Pat 6,944,672 B2)** in view of **Weaver (U.S Pub 2003/0039248 A1)**.

Consider claims **1, 9, 13, 17, 20 and 28, Crow et al** disclose an entry point (host 24) coupled to a network device (router 16) as shown in figure 1. The device – containing a translation engine 80, comprising machine-readable medium with instructions, to handle fragments (col. 4 ln. 56-63) – determines if a packet received at the entry point is a head/primary fragment or non-head/secondary fragment (col. 6 ln. 18-25; fig. 4 steps 102,108). (i) If it is a non-head/secondary fragment, the router determines if a session (context) associated with a primary fragment corresponding to a secondary fragment is present (col. 6 ln. 37-47), update (translate) the secondary fragment with routing information from the context (col. 6 ln. 44-52), and forward the secondary fragment based on the routing information (col. 7 ln. 19-30). A storage unit (memory 84) coupled to the router to store the received secondary fragment if the context is not present (out-of-order) and wherein the router waits for corresponding primary fragment to be received at the host 24 (col. 6 ln. 53-60). (ii) If it is a primary fragment, the router forwards the primary fragment to be processed by one feature – translation engine 80 (col. 6 ln. 18-34; fig. 1); an exit point coupled to the router (fig. 1, connection between router 16 and internet 22) wherein any corresponding secondary fragment stored in memory can be updated (translated) at the exit point (of the router) with routing (addressing) information that result from processing the primary fragment (col. 6 ln. 35-44; col. 7 ln. 4-15) as well as any corresponding stored secondary fragment received prior to the head fragment – based on existing fragment context, therefore, translated prior to head fragment received (col. 7 ln. 18-24); and the translated secondary fragment and primary fragment is forwarded from the exit point (col. 7 ln. 26-30). However, **Crow et al** may not have

explicitly disclosed the primary/head fragment includes a destination address as routing information. **Weaver** teaches a destination address being extracted from a header and remaining segments being forwarded to appropriate locations (para. 0023). It would have been obvious to applying the destination address as routing information from the header to the primary segment of **Crow et al** for updating secondary/non-head segments to route to their appropriate destinations.

Consider claim 3, and as applied to claim 1, **Crow et al**, as modified by **Weaver**, disclose IP fragmented packets received at host 24 entry points (col. 2 ln. 18-22; col. 3 ln. 13-17).

Consider claim 4, and as applied to claim 1, **Crow et al**, as modified by **Weaver**, disclose a primary fragment includes all header information from its original packet (col. 3 ln. 63-65) wherein a secondary fragment includes relatively less of the header information (col. 3 ln. 49-62) when comparing figure 2A (primary fragment) against figure 2B (secondary fragment).

Consider claim 5, and as applied to claim 1, **Crow et al**, as modified by **Weaver**, disclose primary and secondary fragments containing (duplicative) header information from their original packet (col. 3 ln. 63-65; col. 4 ln. 23-25) and comprising: processing one of the fragments having the header information as primary fragment (col. 4 ln. 5-7; fig. 2A section 40); and another one of the fragments having the header information as a secondary fragment (col. 4 ln. 23-27; fig. 2B section 60).

Consider claims **6** and **12**, and as applied to claims **1** and **9**, **Crow et al**, as modified by **Weaver**, disclose applying routing/addressing information to the secondary fragments includes updating source and destination fields (col. 6 ln. 40-44).

Consider claims **10**, **14** and **18**, and as applied to claims **9**, **13** and **17**, **Crow et al**, as modified by **Weaver**, disclose a translation engine (machine-readable medium with instructions) that forward secondary fragments having routing information, and the secondary fragments are not processed similarly as the primary fragments (col. 7 ln. 12-30; fig. 4 steps 118,120 – secondary; steps 110,112,114,116 – primary).

Consider claims **11**, **15** and **19**, and as applied to claims **9**, **13** and **17**, **Crow et al**, as modified by **Weaver**, disclose a translation engine (machine-readable medium with instructions) to generate a session (context) associated with a primary fragment (col. 6 ln. 20-32/44-47); obtain the routing information from the context and apply the routing information to any corresponding secondary fragments received after the primary fragment (col. 6 ln. 47-52/58-60); store any corresponding secondary fragment if the context has not been generated (as for out-of-order secondary fragments) and subsequently apply the routing information to the stored secondary fragments after the context has been generated (col. 5 ln. 4-12/19-23/27-34). However, **Crow et al** may not have explicitly disclosed the primary/head fragment includes a destination address as routing information. **Weaver** teaches a destination address being extracted from a header and remaining segments being forwarded to appropriate locations (para. 0023). It would have been obvious to applying the destination address as routing information

from the header to the primary segment of **Crow et al** for updating secondary/non-head segments to route to their appropriate destinations.

Consider claim **22**, and as applied to claim **20**, **Crow et al**, as modified by **Weaver**, disclose an entry point (host 24, which may be defined as a computer having software functions; col. 3 ln. 25-29) and an exit point (located at the end of router 16) comprising software as well (col. 4 ln. 44-45).

Consider claim **24**, and as applied to claim **20**, **Crow et al**, as modified by **Weaver**, disclose a translation engine 80 that is embedded in the router 16 (network device) in figure 1 to process primary fragments (col. 6 ln. 22-30).

Consider claim **27**, and as applied to claim **20**, **Crow et al**, as modified by **Weaver**, disclose a software program, in conjunction with the router, to handle primary and secondary fragments (col. 4 ln. 44-49; col. 6 ln. 22-23/37-40).

Claims **2** and **26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al** (U.S Pat 6,944,672 B2) in view of **Weaver** (U.S Pub 2003/0039248 A1), as applied to claims **1** and **20**, and in further view of **Marleux et al** (U.S Pat 7,089,486 B1).

Consider claim **2**, and as applied to claim **1**, **Crow et al**, as modified by **Weaver**, disclose the claimed invention except explicitly showing that during the head fragment processing, a *session pointer* data structure having routing information. The method further comprising at the exit point after processing the head fragment: (i) locating the session pointer data structure that was generated during the processing of the head fragment; (ii) generating the helper session based on the routing information from the

session pointer data structure; (iii) using the routing information in the generated helper session to update any stored corresponding non-head fragment or a corresponding non-head fragment subsequently received at the received at the entry point. **Marleux et al** disclose a pointer 803 of a first/head burst (fragment) of a frame field in an entry 802 (col. 8 ln. 15-21); and afterwards, locating the pointer 803 (col. 8 ln. 25-28); memory management then generates updated address fields (helper session) according to the pointer and use the pointer 803 to update routing/address field in a buffer descriptor table for a non-first/head burst (received at entry point) (col. 8 ln. 28-35; figs. 10,11). The pointer 803 is associated with FIFO buffers 810/404 – exit points (col. 6 ln. 35-39; fig. 4 item 404). It would have been obvious to one of ordinary skill in the art to incorporate the teachings above as taught by **Marleux et al**, in the method of **Crow et al**, as modified by **Weaver**, in order to restore frames properly.

Consider claim 26, and as applied to claim 20, **Crow et al**, as modified by **Weaver**, disclose the claimed invention except explicitly mentioning another storage unit coupled to an exit point to store routing information from a helper session. **Marleux et al** disclose two (another) types of storages: a memory management unit 403 and FIFO (storage buffers) 910/404 located at an exit to the software processing component 405 that stores routing information, such as address, from an Service ID table (helper session) (col. 8 ln. 46-56; fig. 9 items 403,910/404; fig. 4 items 403-405). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of another storage unit coupled to an exit point to store routing information from a helper session

as taught by **Marleux et al**, in the system of **Crow et al**, as modified by **Weaver**, in order to map fragments to their corresponding queues.

Claims **7, 16, 21, 29** and **30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al (U.S Pat 6,944,672 B2)** in view of **Weaver (U.S Pub 2003/0039248 A1)** and in further view of **Elnathan et al (U.S Pat 7,245,616 B1)**.

Consider claims **7, 16** and **30**, and as applied to claims **1, 13** and **28, Crow et al**, as modified by **Weaver**, disclose the claimed invention except explicitly mentioning updating the non-head fragment with routing information from a helper session includes the *adding* of a routing tag to the non-head fragment. **Elnathan et al** disclose a slicer comprising an ingress port that divides received packets into cells (non-head segments) and attaches (routing) tags to each of the cell/non-head segments (col. 4 ln. 43-48). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of updating the non-head fragment with routing information from a helper session includes the *attaching* (adding) of a routing tag to the non-head fragment as taught by **Elnathan et al**, in the article of **Crow et al**, in order to identify each cell to the packet which the cell is associated to.

Consider claims **21** and **29**, and as applied to claims **20** and **28, Crow et al**, as modified by **Weaver**, disclose the claimed invention except explicitly mentioning the network device comprises a switch. **Elnathan et al** disclose a switch (fabric 270) to handle fragments (col. 4 ln. 48-50; fig. 2 item 270). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of a network device switch as taught

by **Elnathan et al**, in the system of **Crow et al**, as modified by **Weaver**, for handling fragments.

Claims **8, 23, 25** and **31** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al (U.S Pat 6,944,672 B2)** in view of **Weaver (U.S Pub 2003/0039248 A1)** and in further view of **Basso et al (U.S Pat 7,065,086 B2)**.

Consider claims **8, 23** and **31**, and as applied to claims **1, 20** and **28, Crow et al**, as modified by **Weaver**, disclose the claimed invention except explicitly mentioning the processing of head fragments comprises at least one from a plurality of Layer 4 through Layer 7 features. **Basso et al** disclose processing every (head or non-head) IP fragment at layers 3 through 7 routing mechanism (therefore, includes layers 4 – 7) (col. 8 ln. 65-67; col. 9 ln. 1-4; col. 16 ln. 16-20; fig. 4 items 301,306; fig. 10 item 1006). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of processing head fragments comprises at least one from a plurality of Layer 4 through Layer 7 features as taught by **Basso et al**, in the method and system of **Crow et al**, as modified by **Weaver**, in order to prevent the need of reassembling fragments.

Consider claim **25**, and as applied to claim **20, Crow et al**, as modified by **Weaver**, disclose the claimed invention except another network device coupled to the exit point having the feature to process a head fragment. **Basso et al** disclose besides a layer 3 through layer 7 routing mechanism 1006, an XMT forwarding mechanism 1010 (at the exit according to fig. 10) that processes a first (head) fragment (col. 15 ln. 46-53; col. 16 ln. 43-46). It would have been obvious to one of ordinary skill in the art to

incorporate the teachings of another network device coupled to an exit point to process head fragment as taught by **Basso et al**, in the system of **Crow et al**, as modified by **Weaver**, in order to improve processing speed.

Response to Arguments

Applicant's arguments with respect to claims 1 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, this action is made Final. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is 571-270-1780.

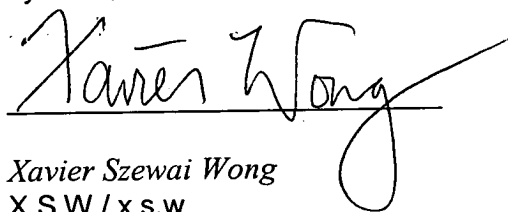
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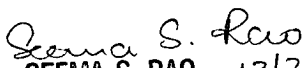
The examiner can normally be reached on Monday through Thursday 8:30 am - 7:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Xavier Szewai Wong
X.S.W / x.s.w
29th November 2007


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